Robotic SBRT in Prostate Cancer Patients Younger Than 50 Years Old-Updated Results

Christopher Mendez 1, Jonathan Lischalk 2, Aaron Katz 3, Matthew Witten 2, Todd Carpenter 2, Seth Blacksburg 4, Michael Repka 5, Alexandra Kern 6, Astrid Sanchez 7, Jonathan Haas 8

1. Radiation Oncology, Perlmutter Cancer Center at NYU Langone, Mineola, USA 2. Radiation Oncology, Perlmutter Cancer Center, NYU Langone Long Island, Mineola, USA 3. Urology, Perlmutter Cancer Center at NYU Langone, Mineola, USA 4. Radiation Oncology, Winthrop University Hospital, Mineola, USA 5. Radiation Oncology, University of North Carolina, Chapel Hill, USA 6. Radiation Oncology, Perlmutter Cancer Center Radiation Oncology-NYU Long Island, Mineola, USA 7. Radiation Oncology, Winthrop University Hospital, New York, USA 8. Radiation Oncology, Perlmutter Cancer Center at Nyu Winthrop Radiation Oncology, Mineola, USA

Corresponding author: Christopher Mendez, christopher.mendez@nyulangone.org

Categories: Radiation Oncology, Urology

Keywords: stereotactic ablative body radiotherapy, prostate cancer

How to cite this abstract

Abstract

Objectives:

Purpose/Objective(s): Stereotactic Body Radiation Therapy (SBRT) is a standard therapeutic option for men with prostate adenocarcinoma. The median age of prostate cancer in the US is 66 but patients as young as 35 have been reported. Many younger patients will have surgery rather than SBRT for localized prostate cancer but some will be treated with SBRT. There is a paucity of data on the outcomes of this younger subset. This study reports updated outcomes on patients younger than age 50 years old treated with SBRT at a single institution and compares outcome to older patients.

Methods:

Materials/Methods: Between April 2006 and September 2021, 5,713 patients with prostate cancer were treated with inhomogeneous-dosed SBRT at an academic institution. SBRT was delivered using a robotic linear accelerator. Information was readily available for 4,100 patients. The majority (86.37%) of patients were treated with a median dose of 3500cGy (3500-3625) over 5 fractions prescribed to the 83-85% isodose line, with other patients receiving a median dose of 4500cGy (4500-5400) to the pelvis in conventional fractionation followed by a 3 fraction SBRT boost of 2100cGy (1950-2100). Androgen deprivation Therapy (ADT) was prescribed in 24.76% of cases. The mean age was 67.4 years old. 48 patients were younger than 50 years old (mean age 46.6). 4,052 patients were 50 or older. Patients were divided into prognostic risk groups with 43.75%, 50.00%, 6.25% of patients falling in the low, intermediate, and high risk stratifications in the younger cohort and 24.06%, 56.89%, 19.05% in the older cohort respectively. Pretreatment PSA was 1.72 – 43.2 (median: 5.4) in the younger group and 0.3 – 661 (median: 6.5) in the older group. In the younger group, Gleason scores were 6 in 47.92%, 7 in 47.92%, and 8-10 in 4.17%. 4 patients also received supplemental pelvic external beam radiation (median dose 4500cGy) and 5 patients (10.42%) received Androgen Deprivation Therapy (ADT) as part of their treatment regimen. In the older group, Gleason scores were 6 in 47.92%, 7 in 47.92%, and 8-10 in 4.17%. 4 patients also received supplemental pelvic external beam radiation (median dose 4500cGy) and 5 patients (10.42%) received Androgen Deprivation Therapy (ADT) as part of their treatment regimen.

Results:

Results: At 72 months (range 19 months – 195 months) the 5-year biochemical relapse free survival was 94% in younger patients compared to 95% in older patients using the Phoenix definition of biochemical failure. The 2-year median post treatment PSA was 0.36 in the younger patients and 0.25 in the older patients. There were no significant differences in the risk stratification between the 2 groups.

Conclusion(s):

Conclusions: This represents the largest series evaluating outcomes in very young patients treated with definitive SBRT for prostate cancer. With 6 -year follow up, SBRT is an effective treatment for this subset of patients. Continued follow up will be required to see if these results remain durable.